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ECONOMIC INTELLIGENCE REPORT

DEVELOPMENT OF THE CONSTRUCTION PROGRAM IN THE EASTERN REGIONS OF THE USSR

CIA/RR 153
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CENTRAL INTELLIGENCE AGENCY

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(ORR Project 47.1787)

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Office of Research and Reports

S-E-C-R-E-T

CONTENTS

Appendixes

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Tables

DEVELOPMENT OF THE CONSTRUCTION PROGRAM IN THE EASTERN REGIONS OF THE USSR*

Summary and Conclusions

The directives of the Sixth Five Year Plan (1956-60) called for the nearly simultaneous development of a number of large industrial "islands" scattered throughout the Eastern Regions** of the USSR, with the greatest concentrations in Kazakhstan, West Siberia, and East Siberia. The aims of the program were to open more rapidly for exploitation the natural resources of the eastern part of the country, to build in those areas a number of heavy industrial enterprises, and to limit the further construction of fuel and power consuming industries in the European USSR and in the Urals. The plan included expansion and improvement of the railroad system, development of an interregional power grid, and construction of all ancillary facilities needed to support the planned industrial growth. The greatest increases in capital investment were scheduled for East Siberia, Kazakhstan, and West Siberia, respectively, whereas one of the smallest planned increases is believed to have been scheduled for the Urals, although it is an integral part of the Eastern Regions.

Capital investment in the Eastern Regions is not being carried out as originally planned. Some large-scale construction is under way, but the total volume of construction is far below that scheduled. Materials and funds for the Eastern Regions as a whole have not been allocated in volumes sufficient to carry out the original plans. If the present rate of investment continues, it is estimated that investment in the Eastern Regions during the period of the Sixth Five Year Plan will be about 32 percent of total state capital investment in the USSR as opposed to 35 percent under the Fifth Five Year Plan (1951-55). Original plans called for about 42 percent of the total state capital investment of the USSR to be allocated to this area in the Sixth Five Year Plan. The investment resources which were planned for the Eastern Regions, but never allocated, have been and are being used elsewhere in the economy.

* The estimates and conclusions in this report represent the best judgment of this Office as of 1 July 1958.

** The Eastern Regions include the Urals, West Siberia, Kazakhstan and Central Asia, East Siberia, and the Far East (Economic Regions VIII through XII).

Also, the regional distribution of new construction within the Eastern Regions has been altered significantly. It now appears that the Urals, northern Kazakhstan, and West Siberia (west of Novosibirsk) will be developed at the highest rates because a greater number of the most important and most advanced projects are located in this area. Integrated industrialization of these portions of the Eastern Regions will take place first, thus providing early production returns and facilitating a subsequent expansion farther to the east. Construction will continue on some key projects in other parts of the Eastern Regions, but the total volume of construction will be much less than that called for in the original plan.

The revised pattern of development, which was in keeping with the policy outlined by M.G. Pervukhin in the discussions of the National Economic Plan for 1957, began to appear in the Eastern Regions in mid-1957. Resources have been and are being allocated in increased quantities to those projects most important to the economy and to those projects nearest completion in order to bring them into production as rapidly as possible. A 7-year program to run from 1959 through 1965, announced in mid-1957, again emphasized the development of the Eastern Regions. A number of national and regional problems currently facing the economy of the USSR, however, have necessitated revision of the original program for the Eastern Regions.

First, materials and funds have been scattered over a large number of projects throughout the USSR in quantities insufficient to maintain planned construction schedules. As a result the construction industry has failed consistently to put new productive capacity into operation on time. Responsible Soviet planners have recognized this problem for a long time, and postponing the start of construction at new projects is one method of alleviating this situation. Projects in the Eastern Regions scheduled to have been started in 1957 and 1958 and those with completion dates scheduled for the period after 1960 in many cases have been postponed or started on a token basis in order to concentrate scarce materials and funds on key projects. Even with optimum concentration of resources, it would seem that the available quantities of resources would limit investment in the Eastern Regions to rates below those originally planned for the period between 1956 and 1960.

Second, since late in 1956 the program for housing construction in the USSR has received increased attention. The total volume of housing to be built under the plan has been increased, but the unit cost of housing construction has not been reduced as anticipated. Thus the program for housing construction, which is concentrated in the European USSR, is demanding more resources than were originally allocated and will absorb most of the resources and funds which were to be conserved by reducing the scope of the program in the Eastern Regions.

Third, the railroad system of the Eastern Regions is inadequate and generally overloaded, with the most developed part of the network located in the western part of the area. Most of the construction of new lines in the Eastern Regions under the Sixth Five Year Plan was to have been west of Novosibirsk, and thus even if all construction were completed on schedule, transportation east of Novosibirsk would remain largely dependent on a single overloaded route.

Fourth, skilled construction workers exhibit a growing reluctance to leave voluntarily the relative comforts of the European USSR for pioneer living in the east. The lack of skilled workers has been reported from all parts of the Eastern Regions, but no great movement of workers to fill this need has occurred in spite of frequent appeals in the press.

By 1957 it was evident that the industrial construction program in the European USSR was requiring more resources than originally planned. The concurrent decision to emphasize housing construction, which is concentrated in the western area of the country, further increased the demand for construction resources in the west and thus precluded any large-scale flow of resources to the Eastern Regions.

It must be assumed that the Soviet planners were aware that the program for development of the Eastern Regions as originally outlined would require ultimately a high percentage of nonproductive investment. It is possible that they intended to minimize nonproductive investment in the early years of development by following the previous Soviet practice of building the basic industrial projects on a high-priority basis while building nonproductive facilities at a much lower rate. The higher priority given to housing construction since 1957, however, required that housing be built before or parallel with the industrial construction. The increased volume of nonproductive investment required by the higher priority given housing construction plus the difficulties encountered in the program of industrial construction throughout the country left two alternatives: large-scale diversion of resources from the west to the east (which would have threatened the construction program in the west) or a downward revision of the program in the Eastern Regions (which was in the early stages of development). The second alternative has been followed.

I. Introduction.

Plans for development of the Eastern Regions of the USSR have been in existence since the early 1930's, but those plans have consistently exceeded the amount of construction resources available for implementation of this development. In the Fifth Five Year Plan, for example, relatively modest plans for industrial construction were not fulfilled, and construction for almost all branches of heavy industry was severely criticized. 1/* Numerous plants scheduled for completion or partial completion in the Fifth Five Year Plan were left uncompleted, and some are still under construction.

In spite of the poor record of the construction industry in the Eastern Regions under the Fifth Five Year Plan and of the continued shortage of construction resources in the area, the directives of the Sixth Five Year Plan and subsequent commentaries on it stated the apparent intention of pushing ahead rapid, large-scale industrialization of the region. Under the Sixth Five Year Plan, capital investment** in the Eastern Regions was scheduled to increase by 100 percent above the volume carried out under the Fifth Five Year Plan. 2/ In the country as a whole, capital investment was to increase by about 67 percent. 3/ The increase in capital investment was backed up by the announcement of the intention to initiate or to continue construction in the Eastern Regions of a number of specific industrial enterprises, including 4 new ferrous metallurgical plants, a ferroalloy plant, 3 major iron ore mining and concentrating facilities, 4 large aluminum plants, 10 hydroelectric stations (including the largest two in the world), 100 machine-building plants, 8 oil refineries, 17 cement plants,*** and about 4,900 kilometers (km) of railroad (75 percent of total railroad construction planned for 1956-60). 4/ The implementation of this program of development would have intensified each of the problems facing the Soviet economy. Materials and funds would have been scattered over a greatly increased number of projects, many of which were not even planned to be in production until after 1960; the cost of construction per unit of productive capacity probably would have been the highest in the USSR because of the need for large amounts of nonproductive construction (particularly housing), railroad transportation would have been considerably worsened, and skilled workers inevitably would have to have been coerced (either physically or economically) into moving east. In short, an attempt to implement the original plan would have led to the intolerable situation of either having to admit failure of the plan for the region or having to make large-scale reallocation of resources from

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** Throughout this report, all references are to state capital investment unless otherwise noted.

*** For detailed discussion and documentation, see III, A, p. 13, below.

the west, thus endangering plans for over-all construction in the USSR as a whole.

Early in 1957, M.G. Pervukhin pointed out the dangers inherent in such a program and emphasized the need to concentrate all available resources on projects already under construction and planned for early completion and pointed out the consequent need to limit starting new projects. 5/ This policy was iterated even more strongly in April 1958 at the All-Union Construction Conference by V.A. Kucherenko, who, after praising the recent improvement in the work of the construction industry, went on to say 6/:

> And yet there are serious shortcomings in construction and tremendous unutilized reserves. One of the great difficulties in construction is the fact that funds are dispersed over many construction projects, with the result that considerable amounts of money are frozen and the volume of unfinished construction grows. ... We must begin a limited number of first priority projects and supply them with all the material and money they need, and we must strictly observe the established construction schedules. If there are not enough funds to complete within the specified times all the projects that have been started, it would be better to cease work on certain second line projects for two or three years than to shut down all the projects, in effect, and thus tie up state resources, by allotting all of them funds for the sake of appearances, but in amounts that are clearly inadequate.

Detailed study of the progress of construction at individual projects included in the Sixth Five Year Plan* clearly shows the difficulties which have been encountered at sites throughout the Eastern Regions and the growing trend toward the concentration of resources on key projects which promise to yield the earliest possible production. This trend has brought about a concentration of development in the relatively compact area of the Urals, northern Kazakhstan, and West Siberia (west of Novosibirsk). Some idea of the extent of concentration can be seen from a comparison of the areas scheduled for intensive development under the original and the revised Sixth Five Year Plan.**

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* See III, A, p. 13, below.

** See the map, following p. 6.

II. Capital Investment.

A. Fourth and Fifth Five Year Plans (1946-55).

Following World War II and during the reconstruction of Soviet industry under the Fourth Five Year Plan (1946-50), the idea of expanding the industrial base of the Eastern Regions of the USSR received considerable publicity, but little was accomplished because most of the resources were concentrated in rebuilding the installations destroyed or damaged by the war. Less than 30 percent of the capital investment of the USSR under that plan is estimated to have been allocated to the Eastern Regions.

During the Fifth Five Year Plan (1951-55), particularly during 1954-55, investment in the Eastern Regions was increased; about 35 percent of the Soviet capital investment (about 218 billion rubles*) was allotted to that area. 8/ Nevertheless, construction lagged behind the plan, and almost all types of industrial construction were sharply criticized. Construction of oil refineries, ferrous and nonferrous metallurgical plants, machine building enterprises, and coal mines were all criticized and specific examples of poor construction were publicized. 9/ The new railroad construction program, vital to this area, was fulfilled only 55 percent in terms of kilometers of line completed.

B. Sixth Five Year Plan (1956-60).

1. Original Plan.

The original goals specified in the Sixth Five Year Plan (1956-60) for the development of the Eastern Regions of the USSR called for an increase of 100 percent in capital investment above the level of that of the Fifth Five Year Plan. The greatest increases were planned for West Siberia (2.5 times), East Siberia (2.8 times), and Kazakh SSR (2.7 times). 11/ Capital investment in the Eastern Regions under the Fifth Five Year Plan was 218 billion rubles 12/; thus the capital investment originally planned for the Sixth Five Year Plan is estimated to have been about 436 billion rubles, or about 42.5 percent of the capital investment in the USSR.

In November 1956, N.K. Baybakov, then Chairman of Gosplan, USSR, in a speech on "Some Problems of Long-Range Planning" stated that the draft directives of the Sixth Five Year Plan provided for an increase

* Investment figures are in 1 July 1955 rubles converted to new unit valuations. Investments in 1 July 1955 rubles have been multiplied by a factor of 103.3 to obtain the new valuations. 7/

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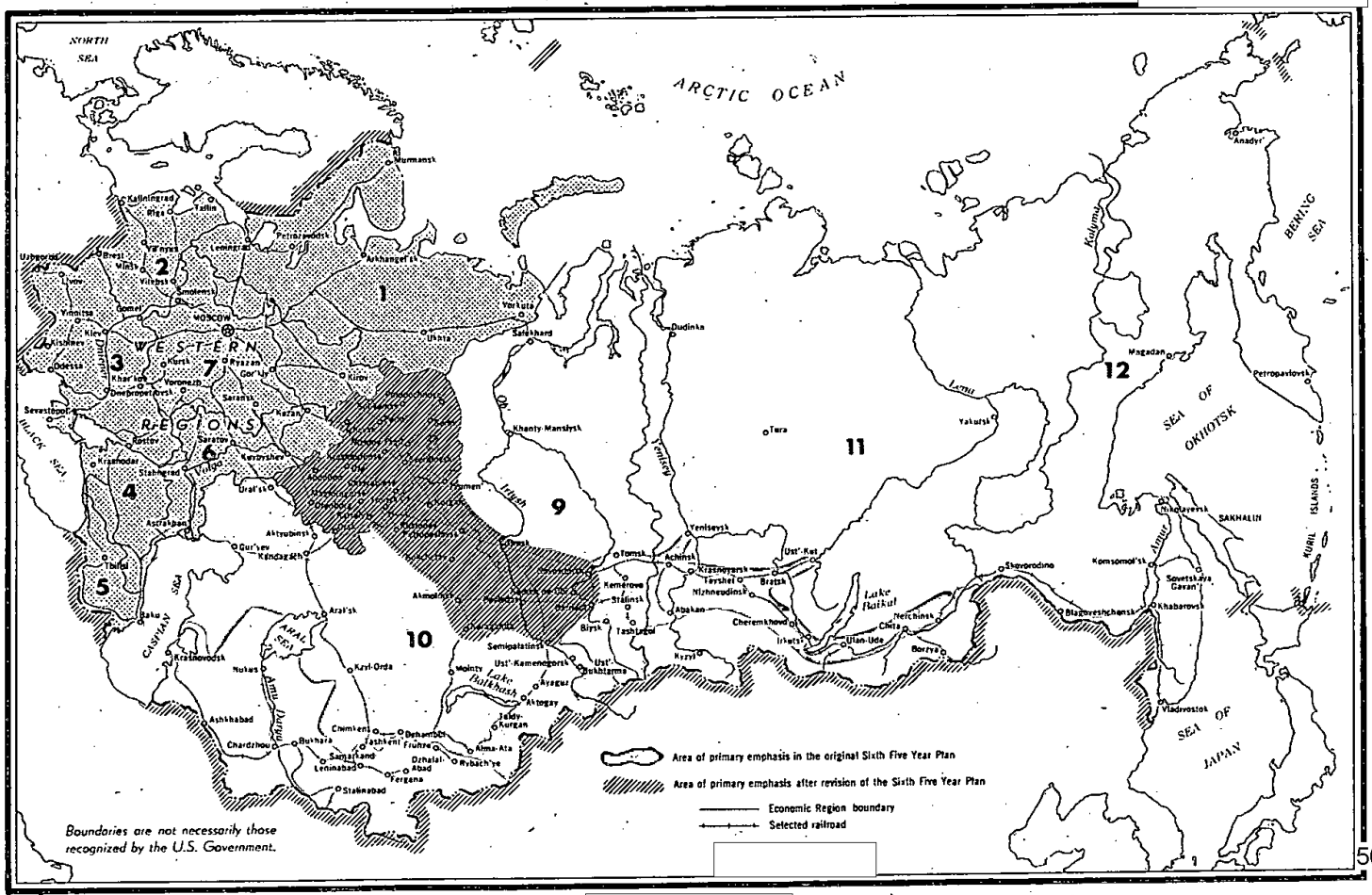
USSR: Areas Planned for Major Industrial Development in the Eastern Regions, 1956-60



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of 100 percent in capital investment for economic development of the Eastern Regions in comparison with the Fifth Five Year Plan and that more than 40 percent of all capital investment in the USSR will be made in the Eastern Regions. 13/ These statements, coupled with a planned growth in the share of capital investment allocated to the Eastern Regions from 35 percent of the total in the Fifth Five Year Plan to 55 percent in the Ninth Five Year Plan, 14/ indicate that about 42.5 percent of the total is a realistic estimate of the original share of capital investment planned for the Eastern Regions in the Sixth Five Year Plan.*

2. Indications of Nonfulfillment of the Plan.

Difficulties in carrying out the construction program for the Eastern Regions became evident with the publication of the Plan Fulfillment Reports for the first half of 1956. None of the republics of the Eastern Regions fulfilled the half-year plan, 16/ and as a result, strong criticism was directed toward the contract construction organizations which carry out about 85 percent of all construction and installation work. 17/ The Plan Fulfillment Reports for 1956 showed that a general nonfulfillment of the plan continued throughout the year. 18/

Although the absolute volume of capital investment in the USSR in 1956 exceeded that of 1955, the planned increase was not met in the first year of the Sixth Five Year Plan.** In fulfilling their plans, the Central Asian Republics ranged from 83 percent to 97 percent, and the RSFSR reached only 95 percent of its planned capital investment. 19/ Although nonfulfillment in the RSFSR cannot be broken down by region, indications are that a greater part of the lack of fulfillment was in the east.

Although the degree of fulfillment of the plan for Kazakh SSR for 1956 was not stated, it was reported initially that the capital investment by state and cooperative enterprises increased 23 percent above the level of that of 1955. 20/ Later data, however, report that the increase was only 10.5 percent. 21/

* Some earlier sources indicated that "about half" of the total capital investment for the Sixth Five Year Plan would be in the Eastern Regions. 15/ These statements have been discounted as either early estimates or overzealous exhortations since such a percentage is not consonant with either the general trend or later statements.

** The plan for capital investment in 1956 was revised upward during 1956, and this revised plan was not fulfilled.

3. Possible Revision of the Developmental Plan for the Eastern Regions.

The first indication that the planned rate of development of the Eastern Regions was being slowed down came in mid-1957, when it was reported that the capital investment planned for Kazakh SSR for 1956-60 was 62 billion rubles, 22/ a cut of 20 percent from the original goal of 78 billion rubles.* 23/ At the same time the government announced that capital investment for the USSR as a whole was being cut by about 6 percent. 24/

In mid-1957 a 7-year program was announced which would extend from 1959 through 1965, ostensibly to permit the development of important resources discovered after the directives of the Sixth Five Year Plan were published. 25/ As no new projects have been announced or new deposits revealed that were not already known in 1956, this program probably will serve mainly to cover inevitable failures in certain parts of the Sixth Five Year Plan.

In December 1957, statements revealed that capital investment for the year in the eastern regions of the RSFSR, which comprise the major part of the entire Eastern Regions, was about 29 billion rubles 26/ and that it was to be increased to 35 billion rubles in 1958. 27/ The investment reported for 1957 and that planned for 1958 in the Eastern Regions are well below the amounts which would have been necessary if the original plan had remained in effect. It is estimated that capital investment in the Eastern Regions between 1956 and 1960 will reach only 305 billion rubles, 32 percent of the Soviet capital investment, instead of 436 billion rubles, 42.5 percent of the Soviet investment as originally planned, and below the 34.5 percent realized under the Fifth Five Year Plan.**

4. Prospects for Future Growth of Investment.

The original directives of the Sixth Five Year Plan called for capital investment in the USSR to increase about 67 percent above the level of that under the Fifth Five Year Plan and for investment in the Eastern Regions to increase about 100 percent. 28/ A difference of this magnitude in the rates of growth would have to be covered in a large degree by major reallocation of resources, particularly manpower, from the Western Regions, although such a reallocation has not been made.***

* These figures are given in 1 July 1955 prices in the old unit valuations. Converted to new unit valuations, they become about 64 billion rubles and 81 billion rubles, respectively.

** The statistical basis for estimating this reduced figure for capital investment is shown in Table 1, p. 9, below.

*** Continued on p. 13.

Table 1

Planned and Estimated Distribution of Capital Investment
in the Eastern Regions of the USSR
Fifth and Sixth Five Year Plans
1951-60

Billion Rubles

Period	Total USSR	RSFSR	Eastern RSFSR	Kazakh SSR	Kirgiz SSR	Tadzhik SSR	Turkmen SSR	Uzbek SSR	Total Eastern Regions
Original Sixth Five Year Plan (1956-60)	1,023 a/	667 b/	309 c/	80.6 d/	7.0 e/	6.2 f/	10.5 g/	22.4 h/	436 i/
Revised Sixth Five Year Plan (1956-60)	962 j/	627 k/	201 l/	64.0 m/	5.9 n/	5.5 o/	8.3 p/	19.9 q/	305 r/
Figures Used to Derive the Revised Sixth Five Year Plan									
1960	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1959	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1958	202 s/	129 t/	35 u/	11.8 v/	1.3 w/	1.2 x/	1.8 y/	3.6 z/	55 aa/
1957	185 bb/	121 cc/	29 dd/	9.3 v/	0.9 w/	1.0 ee/	1.3 ff/	3.0 gg/	44 aa/
1956	167 bb/	111 cc/	37 hh/	11.1 ii/	0.8 w/	0.8 jj/	1.1 kk/	3.4 ll/	54 aa/
Fifth Five Year Plan (1951-55)	615 mm/	408 nn/	165 oo/	29.6 ii/	3.6 e/	3.0 pp/	5.2 kk/	11.2 qq/	218 rr/

a. 29/
b. During 1956-58, capital investment in the RSFSR was 65.2 percent of total capital investment of the USSR. This percentage is estimated to be valid for the entire period of the plan. Thus the original planned capital investment of 1,023 billion rubles for the USSR in 1956-60 has been multiplied by 0.652 to derive the original capital investment of 667 billion rubles planned for the RSFSR in 1956-60.
c. Derived by subtracting the total of the capital investments of the other republics in the Eastern Regions (127 billion rubles) from the original planned capital investment in the Eastern Regions in 1956-60 (436 billion rubles).
d. 30/
e. 31/
f. In Uzbek SSR the revised plan for capital investment was 89 percent of the original plan for capital investment. The relationship was used to derive the original plan for Tadzhik SSR.
g. Estimated to be double the capital investment for 1951-55 in accordance with the general plan for doubling the capital investment in the Eastern Regions. 32/
h. Estimated in the same manner as for Turkmen SSR. See footnote g. 33/
i. Stated to be planned to double the capital investment for 1951-55. 34/
j. 35/
k. Estimated to have been decreased by 6 percent in accordance with the reduction for the USSR as a whole. 36/

Table 1

Planned and Estimated Distribution of Capital Investment
in the Eastern Regions of the USSR
Fifth and Sixth Five Year Plans
1951-60
(Continued)

l. During 1956-58, 50.3 percent of the revised planned capital investment will be carried out in Kazakh SSR. Because of the similarity of development between the eastern RSFSR and Kazakh SSR, it is estimated that a similar percentage of revised capital investment will be carried out in the RSFSR during 1956-58. During this period, 101 billion rubles will be invested in the eastern RSFSR. Thus:

$$\frac{101 \text{ (billion rubles)}}{0.503 \text{ (percent of total in first 3 years)}} = 201 \text{ billion rubles}$$

m. 37/

n. The revised plan for capital investment in Uzbek SSR was 89 percent of the original plan for capital investment and in Turkmen SSR was 79 percent. The arithmetic mean of these percentages (84 percent) was used to derive the revised figure for Kirgiz SSR.

o. During the first 2 years of the Sixth Five Year Plan, Kazakh SSR carried out about 31 percent of its revised capital investment while the USSR as a whole invested about 37 percent. It is estimated that the capital investment of 1.8 billion rubles carried out in 1956-57 in Tadzhik SSR represents 33 percent of the revised capital investment under the Sixth Five Year Plan for this republic giving slightly more weight to the figure for Kazakh SSR. Therefore:

$$\frac{1.8}{0.33} = 5.5 \text{ billion rubles, the revised volume of capital investment in 1956-60.}$$

p. During the first 3 years of the Sixth Five Year Plan, Kazakh SSR carried out 50.3 percent of its revised plan for capital investment. Because of the similarity of the developmental programs, this percentage is estimated to be valid for 1956-58 in Turkmen SSR. Capital investment in Turkmen SSR is expected to reach 4.2 billion rubles during this period. Therefore:

$$\frac{4.2}{0.503} = 8.3 \text{ billion rubles, the revised volume of capital investment in 1956-60.}$$

q. Same methodology as in footnote p. Capital investment in 1956-58 in Uzbek SSR will reach 10.0 billion rubles. Therefore:

$$\frac{10.0}{0.503} = 19.9 \text{ billion rubles, the revised volume of capital investment in 1956-60.}$$

Table 1

Planned and Estimated Distribution of Capital Investment
in the Eastern Regions of the USSR
Fifth and Sixth Five Year Plans
1951-60
(Continued)

r. Total of the estimated revised capital investments in the eastern RSFSR and the Eastern Republics. Range of accuracy of plus or minus 5 percent.
s. 38/
t. 39/
u. 40/
v. 41/
w. Estimated by using the same percentage of the revised capital investment in 1956-60 for each year as was valid for Turkmen SSR: 1956, 13.2 percent; 1957, 15.7 percent; 1958, 21.7 percent.
x. Same methodology as in footnote w, 1958 -- 21.7 percent.
y. 42/
z. 43/
aa. Total of the investments of the eastern RSFSR and the Eastern Republics.
bb. 44/
cc. 45/
dd. 46/
ee. 47/
ff. 48/
gg. 49/
hh. Estimated as follows: 37.7 percent of the construction labor force in the RSFSR was in the eastern RSFSR in 1956. 50/ Assuming uniform productivity of labor, 37.7 percent of the capital investment in the RSFSR for 1956 would have been carried out in the eastern RSFSR (41.8 billion rubles). This figure is estimated to be the upper limit of investment for 1956 because productivity of labor was lower in the east than in the west. The capital investment for the eastern RSFSR in 1956 was estimated also by comparison with data on Kazakh SSR. In Kazakh SSR the capital investment in 1956 was 94.1 percent of the capital investment in 1958. Applying this percentage to the figure for the RSFSR gives a figure which is estimated to represent a lower limit of capital investment for this area (32.9 billion rubles). The average of these two figures has been used as the best estimate. Therefore:

$$\frac{41.8 + 32.9}{2} = 37.4 \text{ (rounded to 37) billion rubles.}$$

ii. 51/
jj. 52/
kk. 53/
ll. State capital investment was estimated from total state and cooperative capital investment of 3.7 billion rubles by applying a factor of 0.945 which is valid for the USSR as a whole. 54/

Table 1

Planned and Estimated Distribution of Capital Investment
in the Eastern Regions of the USSR
Fifth and Sixth Five Year Plans
1951-60
(Continued)

mm. 55/
nn. State capital investment was estimated from total state and cooperative capital investment of 431.3 billion rubles. 56/
oo. Same methodology as in footnote c.
pp. 57/
qq. 58/
rr. 59/

Data concerning the investment pattern of Kazakh SSR indicate that no spectacular increase in capital investment such as occurred in 1954-55 is planned for the future. Rather, capital investment is expected to increase steadily throughout the 7-year period 1959-65. (See Table 2.*) This republic, originally scheduled to have one of the highest rates of growth in the Eastern Regions 60/ will, even after the revision of the program in 1957, develop at a rate faster than that of the Eastern Regions as a whole. 61/

The lack of significant reallocations of resources from the European USSR for 1956-58 (plan), lagging construction throughout the economy of the entire country, and the revision downward of the previous rate of growth of Kazakh SSR all tend to decrease the probability of a sharp increase in planned investment in the Eastern Regions.

III. Progress of Construction by Industrial Sectors.

A. Heavy Industry.

In almost all branches of construction in heavy industry in the Eastern Regions, builders have failed consistently to complete new plants by the dates stipulated in the original plans. Projects currently under construction generally are about 1 to 2 years behind schedule, and in some cases revised completion dates have been announced and then missed later.

Unforeseen difficulties such as shortages of construction materials, lack of construction equipment, and unavailability of skilled construction workers made it apparent by the end of 1956 that construction resources in the area were insufficient to carry out the investment which had been planned and that additional resources were not being allocated from the European USSR.

In mid-1957, shortly after the announcement of a 7-year program, construction schedules of many major projects, particularly those not yet started or in the early stages of construction, were revised and completion dates pushed ahead 1 to 3 years. Although no major project named in the Sixth Five Year Plan has been canceled formally, many in the planning stage probably will receive little or no attention until after 1960. Since mid-1957, increased attention has been directed to projects in the later stages of construction with the aim of putting them in operation as rapidly as possible.

* Table 2 follows on p. 14.

Table 2

Estimated Capital Investment in Kazakh SSR
1951-65

Billion Rubles

Year	Capital Investment
1951	4.2 a/
1952	4.1 a/
1953	4.3 a/
1954	6.4 a/
1955	10.6 a/
1956	11.1 a/
1957	9.3 b/
1958	11.8 b/
1959	14.8 c/
1960	17.0 c/
1961	18.0 d/
1962	19.3 d/
1963	21.0 d/
1964	23.3 d/
1965	26.6 d/

a. 62/
b. 63/
c. Total capital investment planned for 1956-60 is 64 billion rubles. 64/ By the end of 1958, 32.2 billion rubles will have been invested; the remaining 31.8 billion rubles has been divided between 1959 and 1960 based on numerous statements that investments will rise each year.
d. It has been reported that the average annual capital investment in the period 1959-65 must be about twice what was carried out in 1957 65/ and that investment will increase each year during this period. 66/ Twenty billion rubles is estimated to be the planned annual investment during this period, which gives a total investment of 140 billion rubles for the 7 years. The remainder to be invested in 1959 and 1960 will be 31.8 billion rubles (see b/ above) leaving 108.2 billion rubles for the remaining 5 years. This amount was allocated among the 5 years giving the largest increases to later years, in accordance with past and present Soviet practice.

1. Ferrous Metallurgy.

The directives of the Sixth Five Year Plan called for the completion of the Orsk-Khalilovo Metallurgical Combine, partial completion of the Karaganda and West Siberian Metallurgical Combines, the start of construction on two other metallurgical combines in East Siberia, and the partial completion of huge ore-mining installations and ore-enriching plants at Kachkanar, Korshunovsk, and Sokolovsk-Sarbay. 67/ There was little mention of plans for expanding existing plants in the Urals and the Kuzbas.

During 1956-57, construction at metallurgical plants in the Eastern Regions lagged seriously, and the start of construction on some projects has been postponed. Although lip service still is given to original plans, construction resources apparently are being concentrated at the Karaganda Metallurgical Combine and at existing plants in the Urals where plans for large-scale expansion were revealed late in 1957. 68/

The construction of facilities for mining iron ore in the Eastern Regions continues to receive a large amount of effort, 69/ but even in this vitally important field the necessary resources never have been allocated. 70/

All major new projects for ferrous metallurgy in the Eastern Regions are included in the studies of individual plants which follow.

a. New Combines.

(1) Achinsk.

Construction of the Achinsk Metallurgical Combine, originally scheduled to begin under the Sixth Five Year Plan, 71/ is still in the planning stage and is now expected to begin after 1960, although a token "start" may be made in order to permit the planners to report that "construction has begun in accordance with Plan directive."

(2) Karaganda.

The Karaganda Metallurgical Combine is the only new steel plant currently under construction in the Eastern Regions of the USSR.* Original plans called for the completion by 1960 of two blast furnaces, coke batteries, an open hearth furnace, a continuous sheet rolling mill, a power station, and other ancillary facilities. 72/ Construction of housing,

* Token construction has begun at the site of the West Siberian Metallurgical Combine, but no large-scale work has been done.

ancillary shops, and the construction base* were started under the Fifth Five Year Plan, and construction of the main plant began in 1956. 73/

Throughout 1957 and early 1958, there was constant criticism of both the tempo and quality of construction work. Shortages of materials, poor timing of the delivery of supplies, lack of equipment for construction and plants, lack of technical plans, and shortages of qualified construction personnel contributed to the unsatisfactory rate of construction at this plant. 74/ Especially sharp criticism in December 1957 was aimed at the fact that construction of the project was lagging greatly; that, although work was proceeding better than in 1956, the plans for construction and installation were not being fulfilled; that the standard of work was poor; and that the lack of precise organization of construction often resulted in idle men and machines.

Housing construction was singled out for the sharpest criticism. 75/ For the plant as a whole, planned construction and installation for 1957 was fulfilled by only 85 percent. 76/ Construction valued at less than 5 percent of the estimated cost of the plant was completed during 1957, and by January 1958, after 11 years of work, construction valued at less than 15 percent of the estimated cost had been completed. 77/ In spite of the slow progress of construction, the first two blast furnaces, with the accompanying coke batteries, and the powerplant probably will be completed on schedule in 1959 and 1960. 78/ The open hearth shop and the sheet rolling mill will not be completed until 1961 79/ and 1962, 80/ respectively.

(3) East Siberian.

Construction of the East Siberian Combine originally was scheduled to start under the Sixth Five Year Plan 81/ but now has been delayed until 1963. 82/

(4) West Siberian.

Construction of the West Siberian Metallurgical Combine was planned to start in the third quarter of 1956, with the first production of pig iron to begin in 1960. 83/ At present, construction is scheduled to start in 1958. 84/ Although the first blast furnace is still scheduled to produce pig iron in 1960, construction is significantly behind schedule, 85/ and probably production will not begin before 1962.

* The term construction base includes access roads and railroads to the site, workers' housing, storage facilities for materials, plants to produce construction materials used at the site, the park of construction and transport machinery, and the like.

(5) Pavlodar.

Originally scheduled for completion in 1960, 86/ construction of the Pavlodar Ferroalloy Plant is believed to have been postponed because of delays in construction of the Karaganda Metallurgical Combine which will be its chief consumer.

b. Expansion of Existing Combines.

(1) Chelyabinsk.

During the next 7 years (1959-65), several blast furnaces, rolling mills, a blooming mill, coking batteries, and other facilities are planned for construction. In 1957 the volume of construction and installation at the Chelyabinsk Metallurgical Combine reached 350 million rubles -- about 3.5 times the volume of construction at the new Karaganda plant. In 1961 the volume of construction is planned to reach 700 million rubles -- about the same amount as that planned for Karaganda in the same year. 87/ Although some complaints have been made, work reportedly is on schedule. The construction of the fifth blast furnace, which is scheduled for completion in the fourth quarter of 1958, has been declared a "Komosomol' Project" and is treated as a priority project. 88/

(2) Magnitogorsk.

The Magnitogorsk Metallurgical Combine is scheduled for large-scale reconstruction and expansion during 1959-65. 89/ The extent of the construction to be done is indicated by the fact that the investment in the construction base for this expansion program will be about 950 million rubles -- a figure which is one and one-half times as large as the investment in the construction base at the new Karaganda plant. 90/ Minor difficulties in construction have been noted, but work appears to be generally on schedule. 91/

(3) Nizhniy Tagil.

Expansion at the Nizhniy Tagil Metallurgical Combine is currently under way. Complaints have been made that the slow delivery of equipment for the ore-concentrating mill is delaying construction, 92/ and construction of the rolling mill is being held up by the lack of structural and reinforcing steel. 93/

(4) Orsk-Khalilovo.

The Orsk-Khalilovo Metallurgical Combine was scheduled for completion under the Sixth Five Year Plan 94/; however, the open hearth shop scheduled for completion in 1956 reportedly was "just about

completed" in January 1958. 95/ It is estimated that construction at this plant will not be completed until late 1961 or early 1962.

c. Facilities for Mining Ore.

The Sixth Five Year Plan directed that construction of large-scale facilities for mining and dressing ore be undertaken at Sokolovsk-Sarbay in Kazakhstan, Kachkanar in the Urals, and Korshunovsk in East Siberia. 96/ Even so, the only extensive construction presently under way is at Sokolovsk-Sarbay. In 1956, construction proceeded very slowly at the site, 97/ and photographs taken in June 1957 show an early stage of construction and very little equipment. 98/

Plans prepared in 1956 called for production of 1 million tons of ore in 1957. 99/ Subsequent plans called for developing an annual capacity of 500,000 tons of ore by October 1957. 100/ Complaints about the lack of building materials, plans, and reinforced concrete components prevailed throughout 1956-57. 101/ Lagging construction at this site is reflected in a report of March 1958 which states, "already 250,000 tons of ore had been shipped to steel mills of the Urals." 102/ Limited construction has been under way at the Kachkanar Combine since 1955. Of a planned investment of 1 billion rubles, 103/ only 15 million rubles were allocated annually in 1955 and in 1956. The volume of investment in 1957 is not known, but late in August 1957, reportedly only 10 percent of the planned construction and installation work for that year had been completed. 104/

At Korshunovsk, 150 kilometers from the site of the Bratsk Hydroelectric Station, no mine construction has been undertaken, although approach roads and housing reportedly were under way late in 1957. 105/ In March 1958, reports state that only 10 residential houses had been built in the area and that the majority of people still lived in tents. 106/ Lisakovsk, near Sokolovsk-Sarbay, is scheduled to start construction in 1958. The existing ore mines at Atasu, Abakan, and Teisk are reported to be having difficulty meeting plans for expansion of their facilities. 107/

2. Nonferrous Metallurgy.

The construction of four large aluminum plants is among the largest and most important projects in nonferrous metallurgy in the Eastern Regions. These plants were scheduled for partial completion by 1960, 108/ but available data now indicate that construction ranges from 1 to 3 years behind schedule. Delay in the construction of ancillary facilities and housing, slow buildup of the necessary construction bases, and slow development of ore sites are among the causes for failure to maintain planned schedules. Moreover, as the supply of aluminum

in the USSR is believed to have exceeded demand during most of the 1950's, the government may be willing to delay this particular industrial construction. Currently, the only aluminum plant which possibly may be in operation by 1960 is the Irkutsk plant, but any operations by that date would be on a minor scale.

a. Aluminum Plants.

(1) Irkutsk.

Construction of housing and ancillary facilities at the site of the Irkutsk Aluminum Plant began as early as 1953, 109/ but construction of the plant itself did not begin until the fall of 1957. 110/ Although this plant originally was scheduled to begin production in 1958, 111/ construction lagged, 112/ and visitors, who were at the site in November 1957, reported that only foundation trenches had been dug. 113/ Accordingly, this plant is not expected to begin production before late 1959 or early 1960.

(2) Krasnoyarsk.

Construction of the Krasnoyarsk Aluminum Plant began in 1955, and production was scheduled to begin in 1959. 114/ According to reports the plant will be one of the largest in the world and will obtain power from the Krasnoyarsk Hydroelectric Station. 115/ Recent announcements indicate that the State Planning Commission of the RSFSR is allocating smaller amounts of capital than local officials believe necessary for completion of construction in 1959. 116/ The construction schedule of this plant probably has been readjusted to coincide with the construction schedule of the Krasnoyarsk Hydroelectric Station, which is now scheduled to start generating electricity in 1963. 117/

(3) Pavlodar.

Construction of the Pavlodar Aluminum Plant began in 1956, 118/ and production of aluminum was scheduled to begin in 1959. 119/ In the spring of 1957 the construction of ancillary installations reportedly was nearing completion. 120/ Construction and installation planned for 1957 were only 60 percent fulfilled, 121/ and in October 1957 the target date for commissioning the plant was announced as 1961. 122/ This 2-year extension in the time for construction coincides with the decrease of 20 percent of capital investment planned in Kazakh SSR for the Sixth Five Year Plan. 123/

(4) West Siberian.

The West Siberian Aluminum Plant was in an early stage of construction in the spring of 1957, and only excavation for the foundation

and concrete construction reportedly were under way. 124/ Original plans called for at least partial completion by 1960, 125/ but the slowing of construction at the Tom'-Usinskaya Thermal Power Station, which is scheduled to supply the necessary electric power, indicates that the rate of construction at the aluminum plant probably has been decreased. 126/

b. Other Facilities.

Elsewhere in the field of nonferrous metallurgy, poor planning and dispersal of investment funds among numerous small construction sites have been given as reasons for the failure to construct adequate ore-producing facilities for existing plants. 127/ Difficulties have been reported in the construction of bauxite mines, 128/ lead mining and processing facilities, 129/ and sulfur mining facilities. 130/

3. Chemical Industry.

Available data indicate that the construction program of the chemical industry is behind schedule at most projects. Construction of some plants has been under way for from 5 to 8 years. 131/ Poor planning, lack of equipment, and insufficient funds for construction reportedly are the principal reasons for failure to maintain schedules.

Large increases in capital investment for the chemical industry are planned for 1958 and for 1959-65. 132/ This increased investment should speed up construction in this branch of industry. In view of past accomplishments, however, 133/ the original goals for construction under the Sixth Five Year Plan probably will not be met.

a. Mineral Fertilizer Plants.

Expanded production of mineral fertilizer in the Eastern Regions would contribute to the development of agriculture in that area. All known construction projects for mineral fertilizers appear to be behind schedule.

(1) Angren.

The directives of the Sixth Five Year Plan called for construction of the Angren Nitrogen Fertilizer Plant to begin, 134/ but there is no evidence that any work has started.

(2) Chardzhou.

Even though the Chardzhou Superphosphate Plant has been under construction for 8 years, only one-third of the necessary

funds have been allocated. Deputy Babayev, during the debates on the state budget for 1957, complained that construction was behind schedule. 135/

(3) Dzhambul.

Expansion of the Dzhambul Superphosphate Plant is scheduled, but, according to a recent report, construction has not begun. 136/

(4) Kokand.

Construction of the new Kokand Superphosphate Plant was started in 1953, with completion planned for 1955. That date has been revised three times, but in 1957 the plant had not been completed, because of insufficient equipment and funds. 137/ Current plans call for this plant to go into operation in 1958, 138/ 3 years behind the original schedule.

(5) Samarkand.

The second stage of construction of the Samarkand Superphosphate Plant was scheduled for completion by the end of 1956, but, because of failures in planning, construction was stopped. As a result, the planning organization drew criticism for delaying construction. 139/

Also, the construction of sulfuric acid plants at the Central Urals, Mednogorsk, and Balkhash Copper Smelters reportedly is proceeding unsatisfactorily, thus impeding the production of mineral fertilizers. 140/ As these plants are being built by construction organizations working for nonferrous metallurgical plants, there is an indication not only of failures in construction but also of continued failure of allied industries to coordinate planning for construction.

b. Plastics and Synthetic Fibers.

Sharp criticism was leveled against Construction Trusts Nos. 11, 88, and 89, which are building plants in the Urals to produce plastics and synthetic fibers. The press reported that although these trusts fulfilled or exceeded their general plans, they had failed to fulfill by more than 50 percent the work planned on these important plants in 1957. 141/ Incorrect planning for capital investment and unsound construction practices have meant that the construction of chemical plants is taking 8 to 10 years, rather than the desired period of 2 or 3 years. 142/ The State Planning Commissions of the USSR and of the Union Republics have been directed to plan capital investment so that projects which have been under construction for several years may be finished in 1958-59.

c. Chemical Enterprises in East Siberia:

In the Angarsk - Usol'ye-Sibirskoye area of Irkutskaya Oblast, plans had been drawn to build a chemical combine and plants to produce mineral fertilizers, tires, soda ash, plastics, and synthetic rubber. 143/ Late in 1957, [redacted] construction of the chemical enterprises and oil refineries was proceeding very slowly because of the lack of plans, incorrect planning of capital investment, and insufficient construction machinery and transport vehicles. 144/ 50X1

4. Construction of Electric Power Facilities.

Construction of electric power facilities in the Eastern Regions falls generally into two categories: construction to fill the demand for power in existing industrial centers and construction to supply power for areas of new industrial development as well as to provide the base for the Siberian power grid. The first category normally requires construction of medium and large thermal powerplants; the second requires the construction of very large thermal and hydroelectric stations.

In general, construction of medium and large thermal electric stations has kept pace with or has exceeded that of other industrial construction. Plant designs are standardized, construction methods are well established, and equipment is available with the net result that construction has proceeded on schedule and failures have been infrequent.

Construction of very large thermal and hydroelectric stations has not made satisfactory progress. Because of size and complexity, these projects present construction problems not previously encountered. The equipment, particularly turbines for the hydroelectric stations, is new in design and often requires considerable testing and adjustment before satisfactory operation is assured. In many cases these projects are far behind schedule as a result of difficulties in construction and changes in construction schedules which have been altered to coincide with changes in the over-all industrial schedule. The status of construction of individual electric power projects of the Eastern Regions is discussed below. All major thermal electric and hydroelectric construction projects have been considered in the following evaluations.

a. Thermal Electric Power Stations.

Two large thermal electric power stations, the Tom'-Usinskaya and the Belovskaya, are currently under construction in the Kuznets Basin. These plants, each of which will ultimately have

installed capacities of 1.2 million kilowatts (kw), are of key importance to industrial development in the area and will be major links in the future Siberian power grid. Construction of both stations is behind schedule. The Tom'-Usinskaya plant was scheduled originally to have 500,000 kw of installed capacity in operation in 1958. 145/ This goal has now been cut to 200,000 kw 146/ because of lagging construction at the West Siberian Metallurgical Combine and the West Siberian Aluminum Combine, consumers of the power to be generated at Tom'-Usinskaya. Construction of the Belovskaya plant was started in 1956, 147/ and because of construction difficulties the first power now is scheduled to be produced in 1959, about a year later than called for in the original plan. 148/

b. Hydroelectric Power Stations.

(1) Region VIII (Urals).

(a) Kamsk.

Construction of the Kamsk GES,* a 504,000-kw station on the Kama River near Molotov, was started in 1947, 149/ and the first unit was put into operation in September 1954, about 1 year behind schedule. 150/ The cost of construction was about 30 percent more than the estimated figure. 151/

(b) Votkinsk.

Establishment of the construction base for the Votkinsk GES on the Kama River near Votkinsk was begun in 1955, and construction was scheduled to begin in 1956. 152/ Original plans called for power to be produced in 1959 and completion of the plant in 1960. 153/ In mid-1957 it was reported that the installed capacity was to be increased to 900,000 kw 154/ and that the railroad to the site was open for traffic. 155/ Because the dam is still in the early stages of construction and the volume of work to be done is about twice that at the Kamsk GES, 156/ which took 7 years to build, scheduled production of power by 1959 probably will not be met.

(c) Pavlovsk.

Construction was started on the Pavlovsk GES, a 115,000-kw project of the Ufa River about 100 km north of Ufa under the Fourth Five Year Plan (1946-50) 157/; the work proceeded slowly for several years and was accelerated late in 1954. 158/ The revised plans called for the first generator to be in operation in 1957 159/; however,

* Gidroelektricheskaya stantsiya -- hydroelectric power station.

early in 1958 the dam was not complete and commissioning of the plant was rescheduled for the end of 1958. 160/

(2) Region IX (West Siberia).

(a) Kamen-na-Obi.

Plans called for starting construction of the Kamen-na-Obi GES, a 500,000-kw station on the Ob' River halfway between Barnaul and Novosibirsk, under the Sixth Five Year Plan, 161/ but little, if any, work has been done.

(b) Novosibirsk.

Construction of the Novosibirsk GES, a 400,000-kw station on the Ob' River at Novosibirsk was started in 1951 162/ and is still under way. Power was produced first in November 1957, less than 6 months behind schedule. 163/

(3) Region Xa (Kazakhstan).

(a) Shul'ba.

The installed capacity of the Shul'ba GES on the Irtysh River east of Semipalatinsk will be 600,000 kw. 164/ Preliminary work was started late in 1957, but completion is not planned until after 1960. 165/

(b) Bukhtarma.

The Bukhtarma GES, a 525,000-kw station on the Irtysh River just below the mouth of the Bukhtarma River, has been under construction since 1954. The original date scheduled for the plant to begin generating power was 1958, 166/ but the project is estimated to be about 2 years behind schedule and probably will not begin production until 1960. 167/

(4) Region Xb (Central Asia).

(a) Charvak.

Construction of the Charvak GES on the Chirchik River about 80 km from Tashkent was to have started in 1957. 168/ Early in 1958, however, reports state that plans for construction of the dam had been confirmed by the Ministry of Electric Power Stations, but no mention was made of work actually being started. Therefore, it is assumed that construction was postponed. 169/ Construction time was planned to be about 6 years. 170/

(b) Kara-Kum.

Construction of the Kara-Kum GES, a 125,000-kw station on the Syr-Dar'ya River 20 km from Leninabad, was begun in the fall of 1951. 171/ The plant was completed and in full operation late in 1957, as scheduled. 172/

(c) Uch-Kurgan.

The capacity of the Uch-Kurgan GES on the Narym River 12 km from Uch-Kurgan will be 112,000 kw. 173/ Construction of access roads and railroads began in 1956 and was continuing in mid-1957. Administrative difficulties and shortages of equipment have been holding up the work.

(5) Region XI (East Siberia).

(a) Bratsk.

The Bratsk GES on the Angara River about 40 km north of Bratsk is to have a capacity of 3.6 million kw and was scheduled originally to begin producing power in 1960. 174/ Foundation work on the dam was scheduled to begin in 1957, and pouring concrete was to begin in the spring of 1958. 175/ In mid-1957 the new target date for the production of power was reported to be 1962. 176/ The rate of construction of this project is believed to have been slowed so that completion would be concurrent with that of those industrial plants which it will supply.

(b) Irkutsk.

The Irkutsk GES on the Angara River at Irkutsk first produced and delivered power according to schedule on 28 December 1956, 177/ and full capacity of 660,000 kw will be available in 1958. 178/ The plants which this station will service are not expected to be ready for at least a year, and during the interim some capacity will not be used. 179/

(c) Krasnoyarsk.

The Krasnoyarsk GES on the Yenisey River 40 km south of Krasnoyarsk, which is slated to reach an ultimate capacity of 4 million kw, is still in the early stages of construction. In 1957,

the plan for the development of the construction base exceeded plans -- 106 percent. 180/ Originally, power was scheduled to be produced in 1961, 181/ but early in 1958 the target date was announced as 1963. 182/ Here, as at Bratsk, the rate of construction of the hydroelectric station probably was slowed to keep pace with the general program of industrialization planned for the area which the plant would supply.

(d) Mamakan.

The Mamakan GES on the Mamakan River near its confluence with the Vitim River is included (in spite of its small capacity of 60,000 kw) because of its location 1,000 km from the nearest railroad in the area of permafrost.* This plant will supply power to the goldfields and mica mines of Yakutia, 183/ and according to plans the first turbine (20,000 kw) should be in operation in 1960. 184/

(6) Region XII (Far East).

No hydroelectric stations are under construction in this region, although some are tentatively planned for construction after 1960.

5. Machine Building.

The Sixth Five Year Plan called for the construction of over 100 machine building plants in the Eastern Regions. 185/ From 60 to 65 plants were to be built in Siberia and the Far East, 186/ 15 to 20 in Kazakhstan, 187/ and 15 to 25 in the Central Asian Republics and the Urals. As only 4 plants can be identified in Central Asia, 188/ plans probably were to build the remaining 10 to 20 plants in the Urals. This number of plants, although relatively small for such an important region, is consistent with statements in the plan regarding curtailing construction of electric power and fuel-consuming industries in the Urals and the west. 189/

Criticism of the organizations carrying out construction for the machine building industry was severe early in 1956. Although the Ministry of Construction fulfilled its general plan, it completed only 86.3 percent of the work planned for the Ministry of the Machine Building and Instrument Industry. Other organizations doing construction work for the machine building industry did not attain even this percentage of completion. 190/

* Permafrost is a layer of permanently frozen soil beneath the surface of the ground.

On all projects for which information is available there are indications of failure to carry out construction on schedule. The Tashkent and Uzbek Agricultural Machinery Plants have been under construction since 1948 and 1953, respectively, and as of early 1956, 35 percent of their combined planned capital investment remained to be used. 191/ Late in 1957, it was announced that the revised target date for completion of the South Urals Armature Plant, the third quarter of 1957, could not be met, because the foundations for the equipment were not finished and the equipment could not be installed. Construction of this plant is a year behind its original schedule. 192/ The Pavlodar Combine Plant, expected to be the largest plant of this type in the world, is also behind schedule. In 1957, only 60 percent of the planned construction and installation work was carried out on the ancillary facilities and the construction base. 193/ As a result, construction of the main buildings of the plant, scheduled to begin in mid-1958, probably will be delayed. 194/

What adjustments, if any, have been made in the orginal plan for construction of over 100 machine building plants in the Eastern Regions are unknown. The modest increase of 5 percent in capital investment for the machine building industry of the USSR as a whole in 1957 above the level of that for 1956 and the general difficulties in construction throughout the Eastern Regions, however, indicate that some downward revision of the plan for constructing 100 plants in the Eastern Regions probably has occurred.

6. Coal Mining.

Construction of coal mining facilities is vitally important to the industrial development of the Eastern Regions. New sources of coal are needed for the steel mills of the Urals Region as well as for the new plants scheduled for construction throughout that area. One of the reasons for not pushing construction of ferrous metallurgical plants in the Eastern Regions may be that the Soviet planners realize that a reliable coal and ore base should be established first.

Lagging construction of coal mines in the Eastern Regions is serious in that it tends to retard the industries of that area which depend on coal. Construction of coal mines in Kirgiz SSR for the first 6 months of 1957 reached only 57 percent of plan, and housing construction for mine workers, only 35 percent of plan. 195/ Kazakhstan may have been in even worse difficulties because in 1957 production of coal, which in that rapidly developing area should increase, actually reached only 98 percent of the amount produced in 1956, and production of coking coal reached only 96 percent. Such an absolute decline in production is found in no other branch of heavy industry in Kazakhstan and may indicate gross lack of fulfillment of new mine construction. 196/

Late in 1957, expansion and development were under way at Kushmurun, Angren, Ekibastuzugol', and other areas. In many cases, however, the time required for constructing mines lengthened, and the commissioning of new mining capacity lagged behind the plan. 197/

The nationwide plans for construction of coal mines in 1957 called for commissioning new capacity to produce 46 million metric tons of coal. 198/ Plans in 1958 called for commissioning capacity to produce only 37.1 million metric tons. 199/ Neither the plans for 1956 nor those for 1957 were fulfilled, and the country has made little progress toward meeting the goals for new mining capacity set for 1960. The USSR needs to increase its supply of coal; therefore the failure to realize the plans indicates that the general construction program for coal mines is in serious difficulty. No regional breakdown indicates where cuts in construction have occurred, but, doubtless, the program in the Eastern Regions has been curtailed.

7. Petroleum Industry.

a. Survey.

Under the Fifth Five Year Plan the Ministry of the Petroleum Industry continually failed to fulfill its plans for capital investment and for putting oil refineries into operation in the Eastern Regions. 200/ Although the Ministry's plan for the production of crude oil was fulfilled 101 percent, the planned volume of construction and installation work for refineries was fulfilled by only 88 percent. This failure to fulfill the plan for construction of refineries contributed to the underfulfillment of the plan -- by 67 percent -- for commissioning new capacity. 201/

Although the situation in the construction of refineries has improved somewhat from that under the Fifth Five Year Plan, many shortcomings still exist and will prevent the completion of new facilities as scheduled. Under the Sixth Five Year Plan, seven new refineries were to be constructed in the Eastern Regions. Because of Soviet emphasis on the completion of plants which have been under construction for a long period, work is now being concentrated on those refineries in the Eastern Regions which were begun before 1956.

Construction continues on the partly operative refinery at Omsk. 202/ First productive capacity is expected to be completed by 1958 in the refineries at Fergana, Perm', 203/ and possibly Angarsk. 204/ Construction of new plants at Pavlodar and Bogotol is scheduled to begin in 1958. 205/ The plan also calls for beginning construction before 1960 on plants at Chimkent and Raychikhinsk, but little is known of these prospective installations.

Past performance of the construction industry in this field and the shortages of materials and of skilled manpower for construction in the Eastern Regions make it unlikely that any of the plants started in 1958 or later will be operational until after 1960. Materials and

manpower probably will be withdrawn from plants that are in the early stages of construction and transferred to others in order to place some plants in production as early as possible.

b. Refineries.

(1) Omsk.

Construction of the Omsk Oil Refinery started in 1952, and production began in September 1955. 206/ The rate of construction, although proceeding faster than at some refineries, was criticized on the basis that only 804 million rubles of an estimated cost of 2 billion rubles had been allocated during the Fifth Five Year Plan. 207/ Originally, the plant was to be completed in 1960, 208/ but plans to increase the size of the plant have made this target date unattainable. 209/ Work at this refinery has been stepped up, and construction appears to be moving ahead rapidly. Additional "young patriots" from the west reportedly arrived at the site late in 1957 to help speed construction. 210/

(2) Perm'.

Construction of the Perm' Oil Refinery has proceeded slowly for 8 years. Original plans called for the first section to be commissioned in 1953 or 1954. Late in 1957, however, construction was incomplete, and 66 million rubles' worth of equipment for the first section lay at the site awaiting installation. 211/ The workers have pledged to have the first section in operation by the anniversary of the October Revolution in 1958. 212/ A final date for completion of the entire plant has not been set, and much work remains to be done even after production begins at the refinery.

(3) Fergana.

Initial construction of the Fergana Oil Refinery probably began under the Fifth Five Year Plan and has proceeded on schedule. Commissioning of the first section of this plant is scheduled for the end of 1958 213/ and probably will be achieved.

(4) Angarsk.

Construction of the Angarsk Oil Refinery probably started before 1956, 214/ and the original schedule called for completion of the first section in 1958. 215/ Press photographs taken in May 1958 show a fairly advanced stage of construction, 216/ but, because the plant was not included in a list of eastern refineries slated for partial completion in 1958, construction is estimated to be slightly behind schedule. 217/

(5) Pavlodar.

The Sixth Five Year Plan directed construction of the Pavlodar Oil Refinery but set no date for completion. 218/ According to an announcement in 1956, production of gasoline would begin in 1960. 219/ Construction was to begin in 1957, 220/ but early in 1958 no work had been undertaken, and reports stated that construction would begin later that year. 221/ Because of the continued failures to start construction and because of the report that construction of an oil refinery in the USSR requires from 5 to 6 years, the Pavlodar Refinery probably will not be in operation until after 1960. 222/

(6) Bogotol.

The site for the Bogotol Oil Refinery was surveyed in 1956, 223/ but construction was not to begin until some time in 1958. 224/ No production was scheduled at this refinery under the Sixth Five Year Plan.

(7) Chimkent.

Work on the Chimkent Oil Refinery was scheduled to start under the Sixth Five Year Plan, but no production was planned. 225/

(8) Raychikhinsk.

Construction of the Raychikhinsk Oil Refinery in Amurskaya Oblast was to start before the end of the Sixth Five Year Plan, 226/ but no information on progress is available.

8. Construction Materials Industry.

a. Survey.

The shortage of construction materials is a major problem for almost every construction site in the Eastern Regions on which data are available. Precast concrete components and cement are the two materials most frequently mentioned as being in short supply.

The production plan for precast concrete in Kazakh SSR and the RSFSR was not fulfilled. 227/ Also, the construction of plants in Kazakh SSR to supply precast concrete products reportedly lagged behind the plan. 228/

The importance of cement to the construction industry and the shortage of cement in the Eastern Regions make the development of facilities to produce cement vitally important to construction in the area. One of the main features of the Sixth Five Year Plan in the field of construction materials was its emphasis on the need for a more rational distribution of cement plants. Twenty-seven new plants were planned for completion between 1956 and 1960 in the USSR, of which

17 were to be located in the Eastern Regions 229/ (4 in Kazakh SSR, 1 in Turkmen SSR, and 12 in the eastern RSFSR including the Urals). 230/

In October 1957, reports revealed that instead of the 27 plants originally planned, only 16 were planned for completion before the end of the Sixth Five Year Plan, the majority to be built in the Eastern Regions. 231/ During 1956-57, 2 plants were completed in the Eastern Regions, and 8 are scheduled for completion between 1958 and 1960. 232/ Thus of the 17 plants originally scheduled for this area, only 10 will be completed. The consequent reduction of the amount of cement available from local sources will have a serious effect on the supply of this material to construction sites in the Eastern Regions.

The ability of the construction industry to complete even this scaled-down program of building cement plants is questionable. Most of the plants now under construction are behind schedule, and much work remains to be finished at those which, at present, are partly operative.

b. Cement Plants.

(1) Irkutsk.

The first production line at the Irkutsk Cement Plant went into operation about 1 year behind schedule. 233/ Builders are making every effort to complete the second and third production lines, but a sufficient supply of raw materials is available only for the first line. 234/

(2) Karaganda.

Builders reportedly are making the same mistakes at the Karaganda Cement Plant as they made at Irkutsk. They are concentrating effort on finishing the kilns with little thought given to grinding mills and other necessary installations. 235/

(3) Kuznets.

The third kiln has been put in operation at the Kuznets Cement Plant, and complaints are prevalent that the builders are planning to put a fourth kiln in operation late in 1958 instead of building other more important facilities at the plant. 236/

(4) Achinsk.

Complaints are made that the State Planning Commission of the RSFSR is not allocating sufficient funds in 1958 to insure a high rate of construction at the Achinsk Cement Plant. 237/

(5) Chimkent.

The Chimkent Cement Plant is scheduled to have its first line in operation in the fall of 1958. 238/ Construction lagged in 1956 and 1957 and probably is still behind schedule. 239/

(6) Semipalatinsk.

First production at the Semipalatinsk Cement Plant was scheduled for early 1958 240/ but later was rescheduled for the fall of that year. 241/

B. Transportation.

Under the Sixth Five Year Plan, 6,500 km of new rail lines were scheduled to be commissioned* in the USSR, about 75 percent of which were to be located in the Eastern Regions. 242/ The lines to be built were to fill gaps in the existing rail network, to provide additional access to the European USSR across the Urals, and to provide access to some of the new industrial sites. Construction of these lines and improvement of the existing system were of critical importance to the original program for the Eastern Regions because the facilities generally were overloaded and provided no access to some of the areas slated for industrial development. Even under the revised program the construction of new main lines remains very important, although some of the access lines to areas formerly scheduled for industrialization can be deferred for future construction.

During 1956, railroad construction progressed with exceptional speed. More than 1,200 km of new track were laid, 243/ and 885 km of new rail lines were commissioned. 244/ That year was by far the most impressive in postwar railroad construction in the USSR. Plans for 1957 called for commissioning 1,277 km of new lines which seemed virtually assured as over 1,000 km represented the final work on several lines which had been in "limited operation" for a number of years. 245/ This goal was not fulfilled, and only about 1,000 km of new lines actually were commissioned. 246/

* In the USSR the practice in railroad construction is to lay the roadbed and track first and then open the line for "limited operation." Commissioning (completion) of a railroad line takes place only after all ancillary facilities have been completed. In some cases 5 years or more have passed between completion of track laying and commissioning of the line. During this interval the railroad is considered as uncompleted construction and may be operated by the construction organization, MVD, or an industry.

Organizations engaged in railroad construction have suffered in the past from the same difficulties as other organizations throughout the construction industry. Construction resources have been scattered, funds have been allocated in insufficient amounts, the volume of planned capital investment has been increased each year, and projects have not been completed on time. As a result, large amounts of state funds were frozen in uncompleted lines on "limited operation" status, so that by 1 January 1957 uncompleted work in railroad construction for the USSR as a whole reached 11.5 billion rubles, more than twice the yearly volume of construction and installation work. 247/ Most of this uncompleted work was in the Eastern Regions.

The number of commissionings planned for 1957 but not completed probably reflects the slowing down or stopping of work on lines leading to new industrial sites, the development of which had been postponed. For example, so little capital was allocated to continue work on the Achinsk-Abalakovo line being built to service the site of the future Yenisey Hydroelectric Station that it could not be completed for 15 to 20 years if construction continues at the present rate. 248/ The line had been scheduled for completion late in 1959. 249/ At the same time, work on main lines of importance to the national economy as a whole was allocated additional resources and personnel. The Stalinsk-Abakan sector of the South Siberian Railroad was pushed with great vigor and opened for through traffic by December 1957 250/; work on the Aktogay-State Border Railroad, which will connect with the Trans-Sinkiang Railroad in China, was speeded up 251/; and work on a new crossing of the Urals, from Magnitogorsk to Abdulino, was given new impetus. 252/

The increased priority being given to the rapid construction of major main lines and the slowing up of work on industrial branch lines which occurred in 1957, while probably contributing to nonfulfillment of plans in 1957, will strengthen the railroad system in the Eastern Regions. Railroad construction, no doubt, is being directed toward expanding a network of main lines so as to insure dependable transportation for future development of industrial sites. The recent announcement of construction being started on the final 680-km section of the South Siberian main line underlines this shift in policy. 253/ This line from Abakan to Tayshet was not included in the original plan but will greatly strengthen the transportation net of East Siberia by providing an alternative route to the Trans-Siberian Railroad as far as Tayshet.

C. Housing.

Goals for housing construction in the USSR as a whole in 1956 were not fulfilled by about 10 percent, or nearly 3 million square meters (sq m). 254/ Although it is difficult to make a definitive breakdown showing the lack of fulfillment by region, the rate of nonfulfillment in the Eastern Regions is estimated to have approximated

the rate of nonfulfillment of the entire country. Kazakhstan and the Central Asian Republics reported lack of fulfillment of plans, 255/ and complaints from construction sites in the eastern RSFSR made it apparent that the situation was generally the same throughout the Eastern Regions.

In 1957, in spite of the higher priority given to housing construction and the consequent overfulfillment of the plan for the USSR at large, 256/ plans for housing construction in the Eastern Regions again were not fulfilled. Although the Central Asian Republics, with relatively little total housing under construction, did fulfill their plans, 257/ Kazakhstan, largest and most important republic of the Eastern Regions, was able to fulfill its plan by only 83 percent. 258/ Reports from the construction sites of the Karaganda Metallurgical Combine and the Sokolovsk-Sarbay Ore Mine indicated serious difficulties in housing construction in 1957 which, in turn, retarded construction of the main facilities. 259/ Indications are that housing plans for Karaganda, even if fulfilled, will not keep pace with the growth in the labor force through 1960, 260/ and similar reports from Sokolovsk-Sarbay indicate that through 1960 only barracks-type housing will be available for workers. 261/

Complaints from construction sites throughout the eastern RSFSR parallel the complaints voiced in Kazakhstan, suggesting that failure to fulfill the over-all housing plan in the eastern RSFSR might have been as great as that in Kazakhstan. Construction workers are living in tents at the site of the future Korshunovsk Ore Mine in East Siberia 262/; difficulties in completing preparatory work for housing and mine construction are reported from Kachkahar in the Urals 263/; and similar reports come from other sites throughout the east. 264/

The volume of housing construction in the Eastern Regions is expected to increase significantly from 1959 to 1965. The original program for industrial development demanded that resources for housing construction be scattered at many sites of future industrial development in remote, hard-to-supply areas. A revision downward of the program for industrial construction will permit concentration of resources for housing construction at key projects and in larger cities and should lead to much greater efficiency. In addition, local construction materials which would have been used by the original industrial program, now may become available for housing construction. Tentative plans for the Irkutskaya Oblast reflect this expectation. There, reportedly 852,000 sq m of housing were completed in 1957. Plans for 1959-60 call for the construction of 2.5 million sq m, and, between 1961 and 1965, the average is expected to reach 2 million sq m per year. 265/

IV. Construction Industry in the Eastern Regions.

The ability of the construction industry to complete on schedule industrial construction planned and to maintain estimated construction costs depended upon the willingness of the state to allocate sufficient resources to the Eastern Regions. The failure of the state to allocate the necessary volume of construction materials has already been indicated.* At the same time, failure to make available to the construction industry of the area either the requisite manpower or equipment made attainment of the plan goals virtually impossible.

A. Labor Force.

Both the number of construction workers available and the qualifications of those workers have had a considerable effect upon the construction industry in the Eastern Regions. The drive to recruit new workers for construction sites in the east was divided into two phases in response to these two aspects. The first phase was directed toward obtaining sheer numbers of workers without regard to their qualifications; the second phase, which is now in effect, concentrates on recruiting skilled or semiskilled workers. The original development program which included many new projects in early stages of construction could have absorbed large numbers of unskilled workers who could have been trained "on the job" as construction progressed. The revised program, however, is directed toward completion of projects which demands highly skilled construction workers.

During 1956 and early 1957, numerous appeals appeared in the press of the European USSR for young people to go to the construction sites in the Eastern Regions. Direct monetary benefits were promised, including free travel, per diem while en route, and bonus payments. 266/ Various other inducements were offered such as aid in obtaining or constructing housing and liberal opportunities for on-the-job training. 267/

In mid-1957, it became evident that all was not well with many of the new workers in the Eastern Regions. There were reports of antipathy or hostility toward the newcomers on the part of older workers and administrators at some sites. 268/ On-the-job training often failed to materialize and unskilled workers were held at menial jobs under very poor working conditions. Living conditions also were poor, and in Krasnoyarsk 5,000 young workers reportedly lived in "crowded, cold barracks without the most elementary comforts." 269/

By June 1957 the construction organizations were becoming more selective in labor recruitment. The Sokolovsk-Sarbay Mine Construction

* See III, A, p. 13, above.

Trust would hire only skilled workers and was interested in only 200 of 1,700 applicants from the Central Asian Republics. 270/ Indications of the reluctance to hire unskilled labor came from the Karaganda Metallurgical Combine where the major part of the labor force reportedly consisted of young people and Komsomol' members. It was pointed out, after giving nominal praise to these young workers, that the work was getting more complicated and that a large, new influx of skilled workers was needed. 271/ Later in February 1958, the Chairman of the Karaganda National Economic Council stated bluntly 272/:

> We need blast furnace builders, coke-chemical workers, oil refinery builders, and builders of other types of plants. As things are at present, such construction crews are lacking in this republic where new branches of industry are being created ... . We get sympathy, but as yet we have received no people.

As the revised program of development in the Eastern Regions comes into full force and projects are brought nearer to completion, the need for skilled construction workers will increase. During 1959-65 the shortage of skilled labor will continue to impede the rate of growth of industrial construction in the Eastern Regions.

B. Mechanization.

Since 1955, Soviet journals on construction have praised highly the use of precast reinforced concrete as a very important construction material. The degree of use of this product serves as one of the major indexes of mechanization of construction. 273/ Up to the present time, however, the use of this material has been concentrated in the large cities of the European USSR, and shortages of it have occurred in the Eastern Regions. Table 3* gives a comparison of the volume of precast reinforced concrete used in various areas and indicates the regional differences in present level of use.

Reports on the low degree of mechanization and the shortage of construction equipment continue to come from the Eastern Regions. Poor planning and lack of construction equipment and transport vehicles were holding up construction of chemical enterprises and oil refineries in East Siberia, 274/ and, early in 1958, manual labor was reported still to be "very common" in Turkmen SSR. 275/ Similar reports were forthcoming from Tadzhik and Uzbek SSR's and the Urals. 276/

* Table 3 follows on p. 37.

Table 3

Volume of Precast Reinforced Concrete
Used per Million Rubles
of Construction and Installation Work
in the USSR
1957

Area	Cubic Meters
USSR average	113 a/
Leningrad	267 a/
Kiev	246 a/
Moldavian SSR	160 b/
Krasnodar Kray	94 a/
Primorskiy Kray c/	93 a/
Gor'kiy Oblast	59 a/
Bashkir ASSR c/	49 a/

a. 277/
b. 278/
c. Located in the Eastern Regions.

The clearest indication of the low degree of mechanization of construction came from the Karaganda Metallurgical Combine in Kazakhstan which is probably the most important and widely publicized project in the Eastern Regions. In 1957, concrete was being vibrated by hand with crowbars because of lack of mechanical vibrators, 279/ and in June 1958 delivery of construction equipment lagged badly. Deliveries as compared with equipment ordered were as follows 280/: vehicles, 75 out of 422; bulldozers, 2 out of 31; and excavators, 11 out of 41.

C. Cost of Construction.

Information concerning cost of construction is limited. The anticipated costs of construction in the Eastern Regions were higher than those in the European USSR, and actual costs are even higher. Individual construction materials were priced according to zone, with the highest prices listed in the most easterly zone. 281/ Similarly, wages are highest in the east. Comparative wage levels for workers, by region, are shown in Table 4.* Although these figures do not apply

* Table 4 follows on p. 38.

Table 4

Comparison of the Index of Wage Levels
in Areas of the USSR a/
1956

Area	Percent	Area	Percent
Far East b/	100	Latvian SSR	64
East Siberia b/	74	Georgian SSR	64
Karelian ASSR	72	North Caucasus	64
Northwest (including Leningrad)	72	Turkmen SSR b/	63
Urals b/	70	Center (including Moscow)	62
Kazakh SSR b/	69	Azerbaydzhan SSR	62
Estonian SSR	69	Uzbek SSR b/	61
North	69	Volga	60
Ukrainian SSR	68	Armenian SSR	59
West Siberia b/	66	Lithuanian SSR	56
Kirgiz SSR b/	66	Belorussian SSR	51
Tadzhik SSR b/	65	Moldavian SSR	49

a. 282/. The wage level of the Far East equals 100.
b. Part of the Eastern Regions.

specifically to the construction industry, they indicate the general level of wages in the various regions and clearly show the high level of wages in the east. Reports from Kazakhstan, Central Asia, Kamchatka, and Siberia attribute rising costs of construction to dispersal of investment, large volume of uncompleted construction, and poor organization and planning of work. 283/ In Krasnoyarskiy Kray, during the first 7 months of 1957, construction costs increased 4.4 percent above the level planned. 284/ Although the revised program for the Eastern Regions probably will lower the construction costs somewhat, the Eastern Regions will remain for the foreseeable future an area of high costs.

APPENDIX A

METHODOLOGY

No shift in the physical distribution of development within the Eastern Regions has been announced formally, and almost all projects originally planned are still slated for eventual construction. The study of construction projects in heavy industry, however, clearly indicates both an absolute decrease in the scale of the Sixth Five Year Plan for the Eastern Regions and significant changes in the distribution of development.

Changes in the physical aspects of the program in the Eastern Regions coincided with the announcement of plans for a 7-year program for development of the national economy. At the same time, appeared evidences of cuts in the capital investment planned in the Eastern Regions.

The Sixth Five Year Plan (1956-60) called for an increase of 100 percent in capital investment in the Eastern Regions above the level of the Fifth Five Year Plan. The revised plan, however, includes no aggregative figure of investment for the Eastern Regions. The capital investment to be carried out in this area under the revised plan has been estimated from the figures for annual capital investment in 1956 and 1957 and the plan for 1958 for the Eastern Regions of the RSFSR and the republics of the Eastern Regions. A revised figure for capital investment for 1956-60 has been reported for Kazakh SSR. Capital investment for the Central Asian Republics has been estimated from scattered data; however, their share of the total capital investment for the Eastern Regions is insignificant. Table 1,* together with its footnotes, explains the detailed methodology used in estimating the capital investment under the revised plan for the Eastern Regions.

* P. 9, above.

Next 12 Page(s) In Document Denied

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